

# *COLOR VIDEO CAMERA* *Color CCD*

**Digital**



*DIGITAL CAMERA SERIES*  
*COLOR VIDEO CAMERA*

**DIGITAL**



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# **OWNER'S MANUAL**



## . User Information



**CAUTION**  
**RISK OF ELECTRIC SHOCK**  
**DO NOT OPEN**



**CAUTION!** TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK).  
NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

### Explanation of two Symbols



The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of un-insulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance- (servicing) instructions in the literature accompanying the appliance.

THE GRAPHIC SYMBOLS WITH SUPPLEMENTAL MARKING ARE ON THE BOTTOM OF THE SYSTEM.

"WARNING-TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THE UNIT TO RAIN OR MOISTURE"

## **INFORMATION**

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This equipment has been tested and found to comply with limits for a Class A digital device, pursuant to part 15 of the FCC Rules.

These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment.

This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications.

Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at their own expense.

## **WARNING**

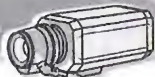
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The manufacturer could void the user's authority to operate the equipment.

**CAUTION** - To prevent electric shock and risk of fire hazards:

- Do NOT use power sources except for that specified.
- Do NOT expose this appliance to rain or moisture.

*This installation should be made by a qualified service person and should abide to all local codes.*

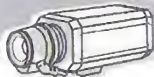


## . Contents

- Thank you for purchasing this COLOR VIDEO CAMERA.

Before using this camera, please read this operation manual carefully to obtain the best result and keep this manual for future reference.

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# 1. SAFETY INSTRUCTIONS

## **Read Instructions**

Read all of the safety and operating instructions before using the product.

## **Retain Instructions**

Save this instructions for later use.

## **Cleaning**

Unplug this appliance from wall outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning.

## **Water and Moisture.**

Do not use this product near water or moisture. (For example, near a bathtub, wash bowl, kitchen sink, or laundry tub, in a wet basement, or near a swimming pool, etc)

## **Installation**

Do not place this product on an unstable cart, stand, or table. The product may fall causing serious injury to a child or adult, and damage to the product.

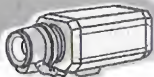
Use only with a cart or stand recommended by the manufacturer, or sold with the product.

Mounting should follow the manufacturer's instructions, and should use a mounting accessory recommended by manufacturer.

## **Power source**

This product should be operated only from the type of power source indicated on the marking label.

If you are not sure of the type of power supplied to your home, consult your dealer or local power company.



## 2. PRECAUTIONS

### Handling

- ➡ Do not disassemble the camera and never touch parts inside the camera.
- ➡ Do not drop the camera or subject it to shocks and vibrations to avoid possible damage.
- ➡ When attaching or removing the lens, handle with care moisture and dust does not enter the camera.

### Installation and storage

- ➡ Do not point the camera at the sun. This could damage the camera whether it is operating or not.
- ➡ Do not install the camera where the temperature could exceed the allowable range.

- ➡ Be sure the ambient temperature is less than 40 °C in installation intended for long term continuous operation.
- ➡ Avoid installing in a humid or dusty place.
- ➡ Avoid installing in places where there are strong magnetic fields and electric signals.
- ➡ Avoid installing in places where the camera would be subject to strong vibrations.
- ➡ Never expose the camera to rain and water.



### 3. FEATURES

**High Sensitivity 1/3 Inch Super HAD CCD Pick-up.**

**Min Illumination :** 0.1 Lux Normal Resolution

0.3 / 0.5 Lux High Resolution

**Auto/Manual Iris lens Selectable.**

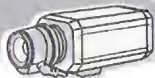
**AGC** (Automatic Gain Control)

**BLC** (Back Light Compensation) on/off

**Flickerless ON/OFF**

**High Resolution :** Horizontal 550 / 480 TV Lines High Resolution

380 TV Lines Normal Resolution



## 4. NAME AND FUNCTIONS

### Side-view

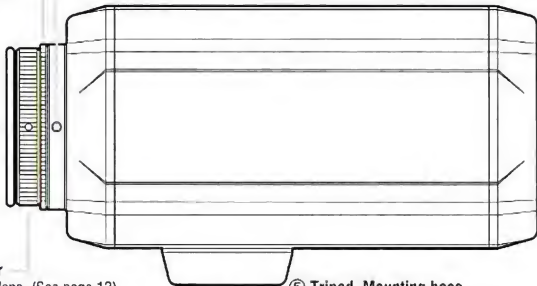
- ① **CS-Mount Lens Adapter**  
Mount for installing the lens.

- ② **Back-Focus Screw** (See page 14)

- ③ **Lens Mount Cap**  
Be sure to cap the lens mount when the lens is not mounted.

- ④ **C-Mount Lens Adapter**  
Used to attach C-mount lens. (See page 13)

- ⑤ **Tripod Mounting base**  
Mounting base for installing the camera.





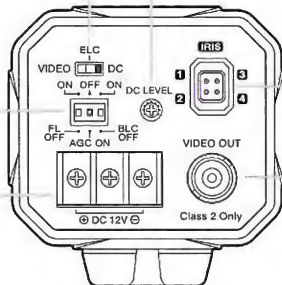
**Rear-view**

① **Lens Select Switch**

④ **DC Level Control Volume**  
(See page 12)

② **Mode Setting Dip Switch**  
(See page 11)

③ **Power Input Terminal**



⑤ **Lens Connector**  
(See page 17)

⑥ **Video Output Connector**  
(BNC-Type)

## ➡ AC 24V/DC 12V Input Model

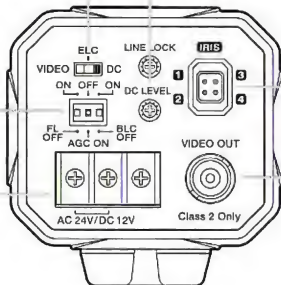
### Rear-view

① Lens Select Switch

④ DC Level Control Volume  
(See page 12)

② Mode Setting  
Dip Switch  
(See page 11)

③ Power Input  
Terminal



⑤ Lens Connector  
(See page 17)

⑥ Video Output Connector  
(BNC-Type)

## ➡ Mode Setting Dip Switch

### ● FL (Flickerless)

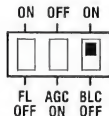
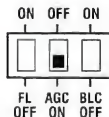
If the camera is used with 50Hz fluorescent lighting, there may be flicker on the screen. In this case, FL switch should be set to ON position. But, FL switch should be set to OFF in 60Hz power source. Flickerless mode can overcome flickering on the screen in case that the AC power frequency is different from the vertical sync frequency of the camera.

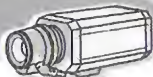
### ● AGC (Automatic Gain Control)

With AGC ON, the setting, camera's sensitivity is automatically increased when the level of ambient light drops. AGC function automatically controls signal gain in the range of maximum 28dB.

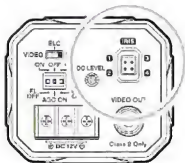
### ● BLC (Back Light Compensation)

Strong light entering from an object's background may cause the lens iris to close, thereby possibly obscuring or darkening desired portions of the scene. Back Light Compensation function automatically adjusts the video level so as to preserve visibility in important section of the scene.





## 5. INSTALLATION (LENS)



Please attach a lens cable when using the DC iris lens or Video iris lens.

Lens select switch on the rear pannel should be set to ELC position when using the manual lens.

When using the VIDEO type lens, please adjust a brightness of image by volume attached with the lens.

When using the DC type lens, please adjust a brightness of image by DC level volume on the rear panel.

- Turn toward L (left) to make the picture brighter.
- Turn toward R (right) to make the picture darker.



## ➤ Mounting a Lens

- 1** Remove the lens mount cap from the camera.
- 2** Attach or remove the C-mount adapter depending on the lens to be used.  
-If the adapter is attached so tightly that it is difficult to remove it.  
(Store the C-mount adapter for possible future use.)
- 3** Attach the lens to the lens mount. Secure it so that it does not become loose.
- 4** If the lens has an auto-iris mechanism, connect the lens cable to the lens connector.  
-When installing a video-iris lens, lens switch should be set to VIDEO position.  
-When installing a galvanometric-iris lens, lens switch should be set to DC position.
- 5** When installing a fixed lens, lens select switch should be set to ELC position.



### ● ADJUSTING AUTO-IRIS LENSES

- 1) Set AGC mode to off.
- 2) When using a video type lens: Adjust the level control on the lens to produce minimum smear and optimum pictures.
- 3) When using a DC type lens: Adjust the video level control on the main menu to produce minimum smear and optimum pictures.
- 4) Set AGC mode to on. It is recommended that the AGC be used in the "on" mode after adjusting the video level.

## ➡ Back-focus Adjustment

- When a lens is mounted, adjustment of the back-focus may sometimes be required. Adjust the lens focus ring when the correct focus cannot be obtained.

### WITH A FIXED-FOCUS LENS

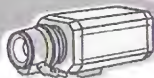
- 1) Fully open the aperture and set the focus ring to " $\infty$ "(infinity).  
In the case of an auto-iris lens only, shoot a comparatively dark object so that the aperture is fully open.
- 2) Loosen the two back-focus screws with a L-wrench, and turn the lens mount to focus.
- 3) After adjusting the back-focus, tighten the back-focus screw.



### WITH A ZOOM LENS

- 1) Fully open the aperture and set the lens to the maximum tele-photo position. Then turn the focus ring to focus.  
In the case of an auto-iris lens only, shoot a comparatively dark object so that the aperture is fully open.
- 2) Set the lens to its maximum wide-angle position.
- 3) Loosen the two back-focus screws with a L-wrench, and turn the lens mount to focus.
- 4) After adjusting the back-focus, tighten the back-focus screw.
- 5) Repeat step 1)~3) until the difference between focusing position 1) and 2) becomes smallest.

**CAUTION :** Do not forcibly turn back-focus screw, as it will cause damage to the camera.



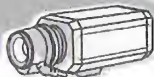
## 6. COMPOSITION

<b>. Lens Connector Plug (E-4-191J-100)</b>	1
<b>. Lens Mount Cap</b>	1
<b>. C-mount Adapter</b>	1
<b>. L-Wrench</b>	1
<b>. Owner's Manual</b>	1

- The lens mount cap and C-mount adapter are attached when supplied.

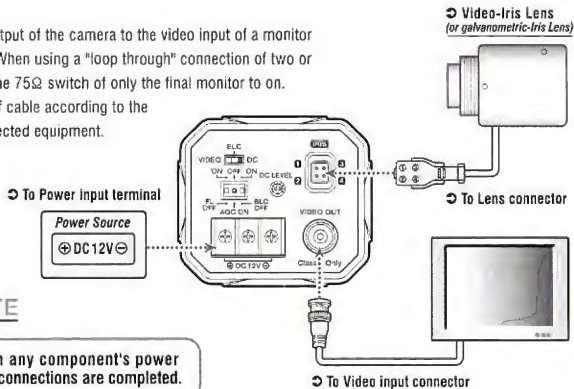


- Design and specifications are subject to change without notice.
- This color video camera is designed to output video signals conforming to the NTSC(PAL) standard. So that it cannot be used with video recorder or color monitors which use color systems other than NTSC(PAL)



## 7 . CONNECTIONS

Connect the video output of the camera to the video input of a monitor or other equipment. When using a "loop through" connection of two or more monitors, set the 75Ω switch of only the final monitor to on. Determine the type of cable according to the distance of the connected equipment.





## ➤ Lens Connector

- When using an auto-iris lens, install the accessory lens plug on the lens cable as follows.

**Video Type lens :** Set lens Switch to Video. Connect the lens cable of a video Type lens.

If the plug on the cable is a different type, replace it with the provided 4-pin Iris plug.

**DC type lens :** Set lens switch to DC. Connect the lens cable of a DC(Galvanometric) type lens.

If the plug on the cable is a different type, replace it with the provided 4-pin iris plug.

**Pin Assignment :**



### ➤ VIDEO Iris Type Lens

Pin No.	Signal
#1	+12V DC
#2	N.C
#3	Video(0.7Vp-p, high impedance, no sync)
#4	GND

### ➤ DC Iris Type Lens

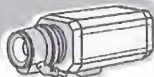
Pin No.	Signal
#1	Damping coil (-)
#2	Damping coil (+)
#3	Drive coil (+)
#4	Drive coil (-)



**NOTE**



After installing the connector plug, connect it to the lens connector on the rear panel of camera.

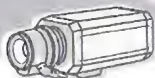


## 8. SPECIFICATIONS

MODEL	High Resolution		Normal Resolution	
Signal system	NTSC	PAL	NTSC	PAL
CCD Pick-up Element	2:1 Interlace Transfer 1/3 Inch Super HAD CCD			
Effective Pixels	768(H) x 494(V)	752(H) x 582(V)	510(H) x 492(V)	500(H) x 582(V)
Video Output	Composite: 1.0V p-p, 75Ω, Unbalanced			
Sync. System	Internal Sync			
Luminance S/N Ratio	More than 48dB (AGC OFF)			
Horizontal Resolution	550 / 480 TV Lines		380 TV Lines	
Sensitivity	0.3 / 0.5Lux(F1.4, 30IRE, AGC ON)		0.1Lux(F1.4, 30IRE, AGC ON)	
Lens Mount	C/CS Mount			
Electronic Shutter	1/60 ~1/100,000 (NTSC), 1/50 ~1/100,000(PAL)			

## ➡ DC 12V Input Model

White Balance	AWB	
Auto Gain Control	On/Off Selectable(20dB)	On/Off Selectable(28dB)
Back Light Compensation	On/Off Selectable	
Flickerless	On/Off Selectable	
Applicable Lens	DC Iris / Video Iris / Manual Lens	
Supply Voltage	DC 12V(10V~15V)	
Power Consumption	180mA / 2.2W (Max)	140mA 1.7W (Max)
Operating Temperature	-10℃ ~ +50℃ (Recommendation: -5℃ ~ +40℃)	
Storage Temperature	-20℃ ~ +60℃	
External Dimensions	63.6 x 54 x 129.7mm	63.6 x 54 x 94.1mm
Weight	390g	335g

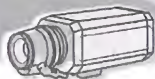


## 8. SPECIFICATIONS

MODEL	High Resolution		Normal Resolution	
Signal system	NTSC	PAL	NTSC	PAL
CCD Pick-up Element	2:1 Interlace Transfer 1/3 Inch Super HAD CCD			
Effective Pixels	768(H) x 494(V)	752(H) x 582(V)	510(H) x 492(V)	500(H) x 582(V)
Video Output	Composite: 1.0V p-p, 75Ω, Unbalanced			
Sync. System	Internal Sync			
Luminance S/N Ratio	More than 48dB (AGC OFF)			
Horizontal Resolution	550 / 480 TV Lines		380 TV Lines	
Sensitivity	0.3 / 0.5Lux(F1.4, 30IRE, AGC ON)		0.1Lux(F1.4, 30IRE, AGC ON)	
Lens Mount	C/CS Mount			
Electronic Shutter	1/60 ~ 1/100,000 (NTSC), 1/50 ~ 1/100,000(PAL)			

## ➡ AC 24V/ DC 12V Input Model

White Balance	AWB	
Auto Gain Control	On/Off Selectable(20dB)	On/Off Selectable(28dB)
Back Light Compensation	On/Off Selectable	
Flickerless	On/Off Selectable	
Applicable Lens	DC Iris / Video Iris / Manual Lens	
Supply Voltage	AC 24V(20V~28V) or DC 12V(10V~15V)	
Power Consumption	330mA / 4W (Max)	240mA 2.8W (Max)
Operating Temperature	-10℃ ~ +50℃ (Recommendation:-5℃ ~ +40℃)	
Storage Temperature	-20℃ ~ +60℃	
External Dimensions	63.6 x 54 x 129.7mm	63.6 x 54 x 94.1mm
Weight	390g	335g



## . Memo



